

of the superconducting signal of a lead sample with similar dimensions.

18. A composition of matter comprising a Y-Ba-Cu-O complex of nominal formula  $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein "x" is 0.4, "a" is 2, "b" is 1, and "y" is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to about 24% of the superconducting signal of a lead sample with similar dimensions.

19. A composition of matter comprising a Y-Ba-Cu-O complex containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to at least 24% of the superconducting signal of a lead sample with similar dimensions.

20. A method for conducting an electrical current without electrical resistive losses, comprising the steps of:

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utilizing as a conductor a composition of matter comprising a Y-Ba-Cu-O complex of nominal formula  $(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein "x" is about 0.01 to 0.5, "a" is about 1 to 2, "b" is 1, and "y" is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to at least 24% of the superconducting signal of a lead sample with similar dimensions;

cooling said composition of matter to a temperature at or below that at which said crystalline phase becomes superconductive; and

initiating a flow of electrical current within said composition of matter while maintaining said composition of matter at or below the temperature at which said crystalline phase becomes superconductive.

21. A method for conducting an electrical current without electrical resistive losses, comprising the steps of:

utilizing as a conductor a composition of matter comprising a Y-Ba-Cu-O complex of nominal formula

$(Y_{1-x}Ba_x)_aCu_bO_y$ , wherein "x" is 0.4, "a" is 2, "b" is 1, and "y" is about 2 to about 4, containing a superconductive crystalline phase consisting essentially of Y, Ba, Cu and O which has zero electrical resistance at 77°K or above, said superconductive crystalline phase having a crystal structure uncharacteristic of that of a  $K_2NiF_4$  crystal structure, and said superconductive crystalline phase being present in said composition of matter in a quantity sufficient to provide the composition with a diamagnetic signal at 4.2°K corresponding to about 24% of the superconducting signal of a lead sample with similar dimensions;

cooling said composition of matter to a temperature at or below that at which said crystalline phase becomes superconductive; and

initiating a flow of electrical current within said composition of matter while maintaining said composition of matter at or below the temperature at which said crystalline phase becomes superconductive.

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REMARKS

The File Wrapper Continuing Application (FWC) request form instructs that the Specification of this FWC application be amended to include identifying this application as being a Continuation of co-pending application Serial No. 12,205 filed on February 6, 1987. By a Preliminary Amendment Under 37 C.F.R. § 1.115 filed on or about July 15, 1987 in Serial No. 12,205 the Specification of the parent application was amended to recite a Statement of Government Support and to add the